

6. A few cases are due to diseases of the cerebral nervous system, hysteria, psychic causes, etc. (intermittent hypersecretion).

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OBSERVATIONS UPON THE TREATMENT OF THE CHRONIC INTESTINAL INVALID.*

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I. INTRODUCTION. The object of the present paper is to record some of the more definite impressions which have resulted from a ten-year intensive study of the chronic intestinal invalid. In 1910, when this study was first undertaken, information of value in regard

* An address delivered before the Hartford Medical Society, May 17, 1920.

to this particular type of patient was conspicuous by its absence. No one knew, and few seemed to care, what was going to happen to a class of invalids who, if seldom seriously ill, were practically always physically if not mentally inefficient. The present study has been prosecuted in the operating room, in various pathologic institutes of Europe, in medical libraries, and finally, for the past five years, by means of practical experience in the medical treatment of these patients. Various aspects of this study have been referred to in published articles.¹⁻¹⁵

As a result of this work there has emerged from the haze of uncertainty a series of rather definite procedures, the application of which has resulted in the obtaining of a satisfactory percentage of improvement in the clinical condition of the type of patients under discussion and in their relative freedom from relapses. In a word the majority of the patients themselves have seemed satisfied with their new ability to carry on the daily affairs of life, and they have usually stated that this ability is in marked contrast to their previous years of physical and perhaps mental incapacity.

II. MENTAL AND PHYSICAL CHARACTERISTICS OF THE PATIENT.

If the *genus homo* is subdivided into four species on the basis of visible physical development, under the headings of hypersthenic, sthenic or normal, hyposthenic and asthenic, we may discover by even a little investigation that the hyposthenic species today is not only conspicuous in point of numbers on a percentage basis, but that especially in the United States, the percentage of individuals belonging to this hyposthenic species is steadily on the increase. There are doubtless many reasons for this state of affairs. Three possible reasons follow:

1. The reduction of infant mortality.
2. The national dietary.
3. Labor-saving machinery.

Weakling infants, as a result of the crusade for reducing infant mortality, are being kept alive in an increasing ratio. If saved through the period of infancy these children are frequently fed during their growing stage (assuming that the feeding is adequate from a calory point of view) on diets deficient in minerals, especially calcium. Later, when adolescent or adult these individuals are often saved from or prevented from acquiring adequate physical development by the increasing use of labor-saving machinery in all our industries. The result of this sequence of events may be predicted as surely for the human as for the dog, or any other organism depending upon an adequate use of its musculature for the adequate muscular development upon which its well-being depends.

The adult hyposthenic may present symptoms predominantly nervous, circulatory, orthopedic or gastro-intestinal. Obviously, any combination of these groups of symptoms may also appear.

It is the gastro-intestinal variety of the hyposthenic species of the

genus homo, with which the present paper is concerned, under the title of the Chronic Intestinal Invalid.

The chronic intestinal invalid usually comes to the physician complaining of digestive symptoms and general poor health. When the complaints of such a patient are examined in detail, however, it will be found that many of them are almost identical with those presented by the other varieties of the hyposthenic species, especially the so-called neurasthenic variety. In general the chronic intestinal invalid shares with the other varieties of the hyposthenic species two distinctions, if they may be called such. On the one hand a careful routine physical examination is usually reported substantially negative, except that the patient is in a state of general poor nutrition and more or less obvious fatigue. On the other hand, although well-marked pathology is lacking, the patient feels, often looks and usually acts sick. Furthermore, such a patient will both persistently continue to say that he is sick, and inefficient both mentally and physically, no matter how often he is assured by well-meaning physicians that there is practically nothing the matter with him, and that if he will only cheer up he will be all right. In this case it is usually the patient who is correct and not the physician.

From the mental point of view the most characteristic finding is a constant overreaction to stimuli of all kinds. Such patients are consequently in a state of perpetual mental unrest. This is reflected in their changeability, the impossibility of their doing prolonged concentrated mental work, and their customary difficulty in getting adequate restful sleep at night. This fundamental excessive irritability is also suggested by a poor or capricious appetite, vasomotor instability, frequent floods of tears, apprehension and suspicion. Nervous energy is being wasted at a terrific rate in all directions, with the unavoidable result that sooner or later physical rest is enforced by collapse. This may proceed to a state in which nausea and vomiting are almost constant. An excessive flushing of the face on the slightest provocation contrasts markedly with the pallor observed in repose. A false vivacity, a peculiar harsh tension of the voice, excessive nervousness, tachycardia, precordial pain, cold and moist extremities and excessive sweating from the axillæ singly or in combination often accompany a spastic constipation and a muddy skin. Yet a fictitious cheerfulness on the part of the patient does much to mask continual bodily discomfort and emotional hypersensitiveness and to throw the casual observer off the track in regard to the true state of affairs.

Physically the bones are usually long and slender and the musculature is nearly always deficient. On account of the absence of a normal amount of erector spinæ muscle the vertebral spines, instead of being inconspicuous in a furrow between the heavy back muscles, are perhaps the most conspicuous feature presented to the observer on inspection of the patient's back. Intimately connected with the

usual fatigue posture is the collapsed lower thorax, the greatly narrowed costal angle, and what might be called the "clam-belly" type of abdomen prominent below but not above the umbilicus.

On inspection the pupils are usually dilated. The respiration is rapid and usually of the upper thorax type. The skin is likely to be dry, often rough, and usually yellowish dirty brown in color. The subcutaneous tissue is lacking in fat, and being without elasticity, feels to light pressure like a wet rag as compared with the rubber sponge sensation obtained on light pressure of the skin of a normal person. The muscles themselves are small, and if they can be relaxed are of poor tone and as lacking in resilience as the subcutaneous tissue.

One of the most striking signs on examination, associated with the discolored and abnormal skin, is a marked dirty discoloration of the entire eye socket. This sign¹⁵ is so constant in its appearance in this type of case as to enable one to say almost at a glance that its possessor has some definite chronic intestinal difficulty; from experience it may be further said in connection with this eye sign that it often accompanies ileal regurgitation and is in itself a definite indication for diet. When diet is properly applied this eye sign and the muddy skin tend simultaneously to disappear.

Unless there is some infection about the teeth, tonsils or sinuses the general physical examination is usually reported negative. But local examination of the abdomen discloses a characteristic distribution of gas. On percussion it will be obvious that the gas is either generalized throughout the entire abdomen or limited to one of two locations. The more common of these locations is the region of the cecum and ascending colon. The second point of election for finding gas is in the sigmoid loop. Not infrequently, on careful palpation, one obtains a gurgling sensation of gas in the cecal region, suggestive of ileal regurgitation. Occasionally one may obtain a striking contrast on palpation between the size of the dilated cecum and ascending colon, and the rope-like spastic descending colon.

Locally such a patient complains of the classic symptoms of pain, gas and constipation. This pain is usually intermittent and associated with gas in the cecum or about the flexures. In addition there is another characteristic type of pain met with in the epigastric region, which, although simulating the pain of ulcer, is apparently largely connected with the narrowing of the costal angle, since it is permanently relieved simultaneously with the widening of this angle.

Gas formation is perhaps the most disagreeable feature of the situation, and in these patients one has to deal not only with the actual gas formation within the intestine but with an often considerable degree of inability to get rid of extraneous air swallowed with the food. When the intestinal tract is unusually spastic it is not infrequent to find that the patient has great difficulty in relieving

himself of gas in the stomach; if possible, it is with explosive effect. The same phenomenon holds true with regard to relief from gas in the rectum. The result is that although the particular patient may be manufacturing no more gas than his healthy neighbor, he is in much more constant discomfort on account of his inability to free himself from what gas is present.

A second point worthy of mention in considering the question of discomfort from intestinal gas is that when the tone of the intestinal musculature is poor the intestine is more easily distended by gas than normally, so that instead of there being a tendency for gas to move along in one direction or the other it remains in one place to the greater discomfort of the patient. This is especially true when there is a dilated cecum and ascending colon in conjunction with a spastic descending colon.

Constipation is for these patients almost normal. It is of one of two types, spastic or atonic. Except in unusual circumstances it will respond to proper treatment, so that instead of having to depend upon large quantities of irritating laxatives a reasonable degree of freedom from cathartics may be brought about by the use of laxative foods.

III. RELATION OF PHYSICIAN TO PATIENT. The relation of the physician to his patient, when the patient is one of the chronic intestinal invalids under consideration, presents certain contrasts to the conditions prevailing in the practice of acute medicine or surgery. In the practice of acute medicine the physician is called upon to see a patient who is presumably acutely ill from a definite disease. Consequently, in his analysis, the physician studying the acutely ill patient is likely to ask himself questions in somewhat the following sequence:

1. Is the patient sick?
2. From what disease is he suffering?
3. What can be done for it?

The physician's focus therefore is primarily upon a clinical entity, perhaps upon a self-limited disease of fatal intensity, and it is unavoidable that the seriousness of the disease may for the time obscure the individuality of the patient who presents the disease.

In the case of the chronic intestinal invalid the focus of the physician must be much more that of the family practitioner. It must be upon an individual who is not well. The patient has probably passed through a diagnostic mill, but may have yielded up almost negative findings. In spite of this the patient continues to complain of mental and physical debility. If the physician is human he must desire to help his patient. In order to throw light upon the obscure problem presented, the intelligent physician must begin his inquiry in somewhat the reverse order from that employed by his confrère who is devoting himself to acute medicine. Thus it is necessary to determine, first of all, with what kind of an individual

one is dealing and how he will react mentally and physically to his environment. The question of disease in this study remains almost always secondary to the question of the individual who is presenting the disease.

A second contrast between acute and chronic medicine becomes obvious when one considers that in acute medicine one clear-cut disease is usually diagnosed. In chronic medicine, on the other hand, the diagnosis is almost never single or simple. There is always a multiplication and a complexity of complaints. Possibly no one of these milder complaints would singly be of consequence. But in conjunction these mild disabilities may come to reach a sufficiently formidable total to prostrate the hyposthenic patient.

The chronic intestinal invalid may temporarily look, comparatively speaking, so well that no one will believe him to be sick. As a result he may get very little sympathy. Since he is exceedingly sensitive to injury, such a patient gradually learns to avoid giving strangers a chance to injure his feelings by the utilization of a mask of cheerfulness. It is impossible for the physician to begin to understand such a patient and to begin to learn with what material he must eventually deal in planning his course of convalescence until he has penetrated this defensive mental mask with which the invalid protects his hypersensitive feelings. For the purpose of penetrating this mask and arriving at an understanding of what is going on behind the mask the principal factor is time. The tenacity with which the patient will continue to remain protected by his mask (then suddenly coming out into the open as a hermit crab leaves his shell) is often amazing. For this reason it has been found desirable, when possible, to devote all the time necessary to the penetration of the defensive mask before the close of the first session with such a patient if real progress is to be obtained. On the basis of experience it may be stated that the penetration of this mask requires in proportion to the grade of mentality of the individual under consideration, anywhere from fifteen minutes to two or three hours. The result obtained, however, more than justifies the effort involved, for once such a patient is convinced of the reality of the interest of the physician in his personality and in his troubles, secrets no longer exist. The physician becomes at once friend, comforter, confessor. The necessity for arriving at this point as rapidly as possible is obvious when one considers the multitude of small details in the daily life of the patient, encompassed in the word environment, which may act to speed up or retard progress toward health.

IV. DIAGNOSIS. The diagnosis in these cases is always a complex of social, mental and medical factors. Thus although the principal complaint which brings the chronic intestinal invalid to the physician may be of a gastro-intestinal nature, one not infrequently may find that industrial fatigue has been a predisposing factor in producing malfunction of the digestive system. In such a case relief of the

gastro-intestinal condition may be impossible without readjustment of the hours of work and the hours of rest. It is always a case of Mohammed and the mountain. But usually it is possible to readjust the patient or the work, or both, in such a manner that slow but continuous progress toward health is realized. There is no doubt that, if possible, it is often more desirable to perform such an adjustment than to remove the patient from all work, the mental effect of this removal being bad both upon the patient and his family if, as usual, there is a family.

The importance of considering the mental factor in arriving at a diagnosis has been referred to in a recent paper.¹² It is indicated also in an interesting recent article by Patrick.²¹

A third predisposing class of factors of very considerable importance in the production of gastro-intestinal disorders are the concomitant but not infrequently neglected medical abnormalities such as those recently reviewed by Bastedo.¹⁶ It is, for example, not at all uncommon to find that mild orthopedic factors have been overlooked on account of the importance attributed by the patient to his gastro-intestinal symptoms. With women in the industries it is surprisingly common to find mild or even more serious degrees of abnormality of the generative functions as a background for digestive complaints. Thus, in one recent case, a telephone operator, aged twenty-five years, was referred for marked digestive troubles. She felt that her digestive troubles caused her nervousness and had convinced her previous physician to this effect. On careful inquiry it appeared that this girl had for years suffered from a very considerable degree of dysmenorrhea for about three weeks out of every four. She had previously mentioned this casually but had dismissed the matter as something that could not be avoided. It was possible, in the course of two or three months, to produce a very great improvement with regard to this dysmenorrhea so that pain only incapacitated her for two or three days. Parallel with this improvement came a marked improvement in the digestive conditions, and when last heard from the patient was back at work on full time.*

For the reason that apparently irrelevant details may prove of such importance as factors in treatment it is essential to devote unlimited time to the taking of a most complete history. It is perhaps not too much to say that with the majority of gastro-intestinal invalids an adequate history and a careful inspection of the patient may suffice to enable one to outline a reasonably successful plan of treatment, a treatment which in a considerable percentage of cases may lead to improvement in the patient's condition sufficiently marked to approximate cure.

* One year after beginning treatment, patient had just reported herself as cured. She has no longer constipation or digestive irregularity, and is for the first time in her life absolutely free from dysmenorrhea.

In general one may state, without danger of contradiction, that careful search will locate the primary etiology of very many cases of chronic intestinal disability in some focus outside the gastro-intestinal tract. This statement is but an amplification of the well-known remark that the stomach acts as a flag station for trouble in other portions of the gastro-intestinal tract far more often than it is itself primarily involved by pathology. Such etiologic foci will be found on search, in some of the other systems of the body, or in purely environmental conditions, reacting upon the patient through his impressionable mentality. A familiar example of this statement is the fact that in the laboratory one may cause a delay of almost an hour in the emptying of the stomach of a cat merely by allowing a dog to bark once or twice in the room in which the cat is being examined. It is thus evident that although the actual distress caused the cat by the dog was very temporary, the gastro-intestinal tract of the cat did not resume its normal function for a considerable length of time after the cause of the mental commotion had been removed.

V. TREATMENT. Rational treatment for the adult chronic intestinal invalid begins with preventive medicine in the child and in the adolescent intestinal invalid, since in probably 90 per cent. of all cases the defective gastro-intestinal tract and the unstable nervous system are conditions inherited rather than acquired. Unfortunately insufficient attention thus far has been paid to these patients during their developmental stages of growth, with the result that all cities and all hospital clinics provide for consideration large numbers of adult chronic intestinal invalids.

The active treatment of the adult chronic intestinal invalid divides itself into the early, intermediate and late phases of convalescence. There is, however, one underlying objective which must never be forgotten. This objective is the increased resistance of the patient to fatigue, and this increase in resistance to fatigue applies equally to the bodily and to the mental spheres. It is frequently necessary to build up from almost nothing the locomotor apparatus of the patient so that it will resist the ordinary strains of life. Simultaneously one must reduce, by educational and reëducational procedures, the overreaction of the nervous system to all forms of incoming stimuli.

During the early phase of convalescence it is frequently necessary to prescribe both internal and external rest. This period of complete rest is, however, usually of exceedingly short duration, since it is found that most patients do better at home rather than in a hospital, and with a definite if regulated degree of mental occupation and physical exercise.

The intermediate phase of convalescence is perhaps the most important. During this period, extending in time over one or two months, there must be an exceedingly careful gradation of physical

effort, so adjusted in length of time and so broken by frequent brief rest periods that in spite of the strains to which the patient is being put, one may obtain slow but gradual improvement in the condition of the general bodily musculature. During this intermediate phase there also comes a transition in the dietary from a somewhat limited soft and bland diet to one containing a larger variety of foods. One may also then introduce into the dietary the coarser foods which, if used earlier in convalescence, frequently result disastrously. In practice it has been found desirable to see ambulant patients twice weekly until the close of the intermediate stage of convalescence. A total of some twenty to thirty hours has usually been expended in personal attention to the individual chronic intestinal invalid by the time the intermediate phase is drawing to a close, and before such a patient begins, so to speak, to be able to navigate alone.

What is referred to as the late phase of convalescence is the period of time extending from the second or third to perhaps the eighth or tenth month after the patient is first seen, and from then on for perhaps two or three years. This is really a prolonged experimental phase during which the patient is enabled to find out, under occasional control, the precise extent to which he may, during his future life approximate what is called a normal standard of daily work with some prospect of being able to withstand it permanently, free from the specter of ultimate prostration. It is obvious that even the strongest individual may be broken by a sufficient amount of work. The object under consideration is, however, to determine how nearly normal an amount of work, a somewhat subnormal individual can accomplish without breaking. Once the high limit has been reached such an individual must realize that except for brief periods, under exceptional provocation, he can only exceed his limit under penalty of a definite danger of producing a recurrence of his symptoms. It is possible, however, during the progress of convalescence, to teach the patient methods by which, should he be forced to excessive efforts by family or other unavoidable calamities, he can, in the majority of cases, as soon as the excessive strain is over, work himself back without technical aid to a reasonably normal condition.

There are five distinct factors of fundamental importance in treatment; they are usually utilized in the following sequence:

1. Social.
2. Mental.
3. Dietary.
4. Orthopedic.
5. Glandular.

If one desires proof of the individual efficiency of these five independent factors they may be employed scientifically in consecutive sequence, so that in three or four weeks all five factors are being

simultaneously employed. It will be noted that of five factors fundamentally important to successful treatment only one applies directly to the digestive tract, 80 per cent. of all treatment utilized being therefore directed to objectives outside the gastro-intestinal system of the chronic intestinal invalid.

The necessity for considering the social status of the patient, not only with relation to character and hours of work but also with regard to the thousand and one other details which make up his daily life, is so obvious as scarcely to require mention except for the fact that it seems often overlooked. But frequently the first stage in relieving a patient of digestive symptoms may be the regulating of his hours of work, and a statement of the maximum length of time allowable for work, between rest intervals which must at first be passed in so far as possible in an absolutely prone position. Not less frequently nothing can be gained without modifying family friction or financial distress.

The mental factor has been referred to.¹² The methods of attack may be variable, but the result to be obtained is clearly a decrease in the overreaction of the patient to incoming stimuli of all kinds. One method used as a routine in the development of neuromuscular control is a system of very slow exercise,^{10 13} which often acts as a kindergarten course in mental reëducation for the patient.

The dietary employed is based in part upon a consideration of the large amount of work by reputable investigators, which tends to prove the ease with which the intestinal flora can be changed by a modification of diet; also, upon a consideration of the fact that ileal regurgitation is an exceedingly common finding in the chronic intestinal type of invalid. Ileal regurgitation was, for instance, demonstrated in 80 per cent. of a consecutive series of 50 chronic intestinal invalids.¹⁵ Eggs, meat and fish, as being potentially putrefactive, are at first absolutely excluded from the dietary, and the use of milk is restricted to the amount ordinarily employed in cooking. After a few weeks of complete restriction of the above foods it is very common to find that the patient's skin is distinctly less muddy. Slowly the yellowish color of the skin is replaced by white and then by pink, a transition which is greatly appreciated by the average woman patient. During this period of marked restriction of the diet, bran and the coarse vegetables are eliminated. No diet list is given, the patients being thus required to use their own brains in the working out of a suitable dietary. One advantage of this system is that the patient gradually acquires an adequate dietary for which he has the least possible dislike. If the dietary actually employed by the patient is written out and continually checked up at successive visits the results seem better from the point of view both of interest of the patient and of the physician than if a diet slip is handed the patient at the first visit. Eggs, meat and fish are rigidly excluded from the diet for at least one month. During the

latter part of this month, however, there is an increasing use of egg as a flavoring, in puddings or other cooked dishes in which the egg is finely divided by mixture with starches or the various vegetables. Meat gravies as relishes precede the use of meats as such. During the month of restricted diet liberal use is made of two special articles of food in conjunction with the usual fruits, starches, vegetables and fats. These two articles are cream cheese (or perhaps the ordinary cheese when used as a flavoring in various cooked dishes) and gelatin. The frequent use of flavored gelatins in the form of salads or desserts is encouraged. The necessary minerals, and the water and fat soluble vitamins, are provided for by the use of raw fruit and green vegetables and a good grade of butter. In this connection it is surprising to discover how few people are acquainted with the virtues both from a financial and an economic point of view, of chopped raw cabbage. This food as a salad with French dressing has been taken time and time again without the slightest discomfort or after-effects by patients who had previously stated that they could not possibly eat such a coarse vegetable.

At the end of a month or six weeks, if the progress of the patient justifies it (as evidenced by decreased constipation, lessened irritability, lessened disturbance from gas, better appetite and sleep, better color of the skin and fewer headaches) meat is put back into the dietary at first once a week. The intervals between the days on which meat is used are thereafter shortened according to circumstances. But in this type of case it has been found most unusual, if meat, eggs or fish as such can be handled with comfort more frequently than two or three times a week. The intermittent use of eggs, meat and fish has another virtue in addition to its economy and its tendency to discourage the growth of undesirable intestinal flora. If the patient has only to wait over one or two days of restricted diet before being allowed a day of full diet there seems to be much less desire for large quantities of these potentially putrefactive foods, which are handled with difficulty certainly in all patients with demonstrated ileal regurgitation.

An orthopedic factor requiring treatment is almost always present in the chronic intestinal invalid. Development of the skeletal muscles, and especially of the muscles responsible for the maintenance of correct posture, is considered a part of the daily routine in treatment. Although it would seem obvious it appears often forgotten that if a patient is not endowed with more than average viscera these somewhat mediocre viscera are certain to function better when given maximum opportunity by proper posture and muscle support than when they are compressed, as in the ordinary fatigue posture presented by these patients when first seen. The slow type of exercise previously referred to has the double virtue of being useful both from the mental and the orthopedic points of view.

During recent years there has been a wave of interest in what has been called ductless glandular or hormone therapy. In this field of work, proof seems unusually difficult. One may, however, assume that where there is much smoke there is at least a little fire, and it is incredible that such a voluminous literature should have grown up in relation to glandular therapy unless there were some justification for it. The student of this newer branch of medicine will find much to interest him in its application to the chronic intestinal invalid. The justification for its use in the type of cases under consideration results from the fact that in numerous personal cases one factor after another has been added to the treatment, each additional factor employed resulting in additional gain in the general condition of the patient. Having exhausted every other available factor, and having arrived at a stationary point in progress, it has been possible in many instances to obtain still further progress by the use of glandular therapy. For example, over five years of observation justify the statement that from a clinical point of view results may often be obtained from suprarenal therapy which are not possible without its use. A vast literature exists concerning the suprarenal gland and its possible utilization as an active therapeutic agent. Acute suprarenal deficiencies are becoming more frequently recognized. Sub-acute or chronic suprarenal deficiencies certainly exist in intensity between the acute deficiencies on the one hand and Addison's disease on the other. It is with these intermediate stages of suprarenal deficiency that the physician is concerned in the treatment of the chronic intestinal invalid, and there is little room for doubt that success is more certain with than without the utilization of suprarenal therapy in these invalids suffering, among other things, from chronic exhaustion. For this purpose, a standard grain v whole gland suprarenal preparation has been utilized in the majority of cases showing chronic exhaustion, with or without the accompanying muddy skin previously referred to. Other glandular preparations are frequently employed. Perhaps most often thyroid in amounts from one-tenth to one-fourth grain is useful. In women ovarian preparations are certainly of value in selected cases.

From a strictly pharmacologic point of view the only drug extensively employed is atropin. This is used in a strength of grain $\frac{1}{16}$, repeated from once to four times daily, according to indications. The two indications for which it is employed are to decrease spastic constipation and to decrease general irritability. It has often been found that a small amount of atropin is in itself sufficient to produce the difference between wakefulness and restful sleep, possibly as a result of its nervous sedative action.

In practice, on completion of the history, physical examination and the routine roentgen examination of the gastro-intestinal tract of which fluoroscopic study of an opaque enema is an essential element, the social and mental factors receive first consideration in

the progress of treatment. As soon as these factors are, so to speak, stabilized the diet is taken under serious consideration. In conjunction with diet frequent use is made of mineral oil, agar, yeast and atropin and every attempt is made to take advantage of habit formation and the natural rectal reflexes. As soon as the diet has become satisfactory the application of orthopedic procedures follows, and finally comes the use of the glandular preparations when indicated. Thus by the end of the first four to six weeks all five of these totally independent factors are being simultaneously employed in the effort to bring about, as rapidly as possible, an improvement in the general condition of the patient. Belts are rarely used, since they tend to decrease the faith of the patient in his own ability to carry himself through his day's work. Only slight attention is paid to the question of weight, provided there is not a progressive loss in weight. Not infrequently one may find an apparently healthy person of almost incredible thinness. On the other hand excessive fat is no guarantee of health. Usually, however, the very thin patients will put on at least ten to fifteen pounds in the course of a few months without apparent effort if otherwise satisfactory progress is being made.

Most authorities agree that the treatment of the chronic intestinal invalid is non-surgical in at least 90 per cent. of all cases. Conversely, recovery seems often to vary inversely with the amount of surgery to which the patient has been exposed. It is, however, certain that no patient should be operated upon unless the indications are imperative, for at least six months after intelligent non-surgical treatment has been instituted. During these six months, even if operation is later proved necessary for specific reasons, such as gall-stones or other definite pathology, the patient can have been brought to a status in which operation can be faced with much less probability of a subsequent slump in health.

VI. PROGNOSIS. The application of the procedures above described to a series of 54 chronic intestinal invalids seen in an outpatient clinic, and reported¹⁴ two years ago, produced the following results:

No improvement	7 per cent.
Improved	27 "
Improved plus	66 "
Total improved	93 "

This gives a total of better than 90 per cent. of definite improvement, although the condition of 27 per cent. of the cases marked "improved" left something to be desired.

In a consecutive series of fifty private patients, recently reported,¹⁵ the following results were obtained:

No improvement	6 per cent.
Improved	8 "
Improved plus	86 "
Total improved	94 "

Compared with the out-patient cases it will be seen that although the total number of private cases considered as "improved" in all degrees was 94 per cent. as against 93 per cent. in the out-patient series, there is, on the other hand, a distinctly higher proportion of cases marked "improved plus" in the private patient series than in the out-patient series, the figure being 96 per cent. "improved plus" in the private as against 66 per cent. "improved plus" in the out-patient cases, or a difference in favor of the private patients of 20 per cent. considered as "improved plus."

It is therefore justifiable to tell the chronic intestinal invalid that he has a better than 90 per cent. prospect of improvement and that he has a better than 80 per cent. prospect of being very much improved as a result of a few months of non-surgical treatment. This is in itself a helpful point of view for the patient to have. The patient can also be told that he will, if careful, continue to improve for from one to three years after the completion of active treatment.

On the other hand it is misleading to speak of cure. Cure may be apparent but it is always conceivable that a sufficiently difficult combination of circumstances will arise to throw the bodily or mental mechanism out of gear. The trained patient will, however, be able rapidly to readjust himself with a minimum of medical assistance. The best advice to these patients is, after Oliver Wendell Holmes, to the effect that the surest approach to a happy old age is through taking care of an incurable disease.

VII. SUMMARY. 1. Certain impressions and observations resulting from a ten-year study of the chronic intestinal invalid have been presented.

2. Some of the mental and physical characteristics of the chronic intestinal invalid have been outlined.

3. Various contrasts in the practice of acute and chronic medicine, as applied, to the chronic intestinal invalid, have been indicated.

4. The importance of considering all possible factors outside of the gastro-intestinal tract in any attempt at adequate treatment of the chronic intestinal invalid, is referred to.

5. Five distinct and fundamental factors in treatment, all tending to increase the resistance of the patient to fatigue, have been considered.

6. The percentage of improvement obtainable as a result of applying the methods of treatment described, is stated on the basis of two different social groups of patients totalling 104 cases.

VIII. CONCLUSIONS. 1. Patience, persistence and a sympathetic understanding on the part of the physician are prerequisites for successful treatment of the chronic intestinal invalid.

2. The problem being complex and not simple, treatment must be applied from as many different angles as possible in order to produce maximum effect.

3. There are five distinct factors of fundamental importance in treatment. These are:

1. Social.
2. Mental.
3. Dietary.
4. Orthopedic.
5. Glandular.

The common objective of all these factors is increased resistance of the patient to fatigue.

4. These five fundamental factors in treatment must be applied in overlapping sequence in order to yield the maximum benefit.

5. The chronic intestinal invalid usually recovers at a rate inversely proportionate to the amount of surgery to which he has been exposed.

6. The physician who will take the time and trouble may promise the chronic-intestinal invalid a 90 per cent. prospect of a reasonable degree of improvement, and an 80 per cent. prospect of a marked or satisfactory degree of improvement as a result of a few months of non-surgical treatment according to the methods above outlined.

7. Treatment which does not train the patient to avoid or to recover from future relapses with a minimum of medical assistance, falls short of what the chronic intestinal invalid has a right to expect from his physician.

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